

The stretch of US-191 area between the Canyonlands Field Airport (Blue Hills Road) and CR-334 to the north is locally considered a potentially dangerous section of the highway. The combination of terrain, slower moving vehicles, and the two-lane limitation can create dangerous passing situations (Vaughn 2003). In addition, according to UDOT highway statistics, a 2-mile stretch of US-191 south of Blue Hills Road sustains more accidents than expected (Ames 2003).

To relieve congestion associated with traffic in the Arches National Park entrance area, a new entrance road has been constructed within the park that will connect with US-191 approximately three-quarters of a mile south of the existing entrance to the park.

UDOT plans to upgrade US-191 to four lanes between Moab and Crescent Junction. However, the current budget only includes upgrades between the area just north of SR-128 to the area just north of SR-313; adding two turn lanes at the entrance to Arches National Park, at Gemini Bridges, and at SR-313; adding a 2-mile-long bicycle lane on the northeast side of US-191; and adding center divides along some stretches of US-191. These upgrades are planned to be completed in 2004 (Manwill 2003).

3.1.17.2 Rail Transport

The Union Pacific Railroad parallels I-70 and offers predominantly freight rail service. On a daily basis, there is usually one Burlington Northern train carrying 75 to 100 cars of mixed manifest; two to three freight trains of 105 to 134 empty coal cars; one to two loaded coal trains of 105 cars; and an east-bound passenger train and a west-bound passenger train. The California Zephyr passenger train stops in Green River, Utah, and Grand Junction, Colorado (Legg 2003).

The Cane Creek Branch of the Union Pacific Railroad parallels US-191 and provides weekly freight service to the Moab Potash and Salt Mine. It carries potash and salt to Crescent Junction and continues on the Union Pacific Railroad to Grand Junction for distribution to points east and west. This train consists of between 40 and 50 cars. It does not stop between the Moab Potash and Salt Mine and Crescent Junction but does cross several county roads with unguarded and unmarked rail crossings. As shown on Figure 3–21, just north of Blue Hills Road (CR-138), the railroad crosses under US-191 from the east to the west side, where it continues south toward the Moab Potash and Salt Mine. At the Blue Hills Road crossing, there is a stop sign but no rail guard arms or signal. After traversing a tunnel, the railroad emerges several miles from the Moab Potash and Salt Mine and continues on the north side of SR-279. The Moab Potash and Salt Mine is located 16 miles from the intersection of US-191 and SR-279.

There was one recorded fatality on the Cane Creek Branch during the period of 1974 or 1975 to 2003. Injuries of all kinds for all travel on the Union Pacific Railroad are reported as averaging 2.9 per 100,000 man-hours of work. Derailments are reported per ton-mile and were estimated at possibly 0.009 percent (Legg 2003).

3.1.18 Socioeconomics

This section describes the socioeconomic environment of Grand and San Juan counties, Utah, in terms of their demographic, economic, and natural resource features.

3.1.18.1 Population, Workforce, and Job Base

Grand County covers 3,689 square miles and had a 2000 census population of 8,485. Its population has grown 28.2 percent since 1990. Prior to 1990, the population declined by 19.7 percent relative to 1980 levels, coinciding with the closure of the Atlas mill in 1984. The recent trends in population growth mark a turnaround; tourism-recreation now forms the basis of economic activity and growth in the regional economy. This fundamental change reflects that the minerals industry (uranium, potash, oil, and gas), which in 1980 directly and indirectly generated 62 percent of all income of Grand County residents, now contributes only 2 percent to the overall labor income. Table 3–17 provides population information for Grand and San Juan Counties.

Table 3–17. Population and Labor Force Information for Grand and San Juan Counties, Utah

Demographic Features	Grand County	San Juan County
2000 population	8,485	14,413
1990–2000 percent change	28.2	14.2
1980–1990 percent change	–19.7	3.0
2000 population per square mile	2.3	1.8
2000 civilian labor force	5,164	4,593
1999–2000 percent change	–4.5	–6.0
2000 unemployment rate	6.5	9.2
Government employment		
Federal	245	285
State-local	545	1,313
Total	790	1,598

From 2000 Census

Source: U.S. Census Bureau, County and City Data Book: 2000

Population effects from tourism and recreation are most notable in Moab, the Grand County seat. Moab is the largest town in southeastern Utah, and in the 2000 census had a permanent population of 4,779. At the time of the 2000 census, more than half of Grand County’s population resided in Moab. By comparison, San Juan County covers 8,103 square miles and had a reported population of 14,412 during the same census period. This county also experienced accelerated population growth during the last 2 decades. It grew 3 percent between 1980 and 1990 and 14.2 percent between 1990 and 2000. According to the 2000 census, the population density in San Juan County is lower than in Grand County, averaging 1.8 individuals per square mile, compared to Grand County’s density of 2.3 individuals per square mile. The population density of both counties is well below the statewide average of 27.2 persons per square mile.

Table 3–17 also provides labor force information for Grand and San Juan Counties. The civilian component of the labor force is similar in size for the two counties, numbering 5,164 in Grand County and 4,593 in San Juan County. This labor force is primarily employed by a service economy founded on tourism-recreation, especially in Grand County. The combination of federal, state, and local government employment is nearly twice as high in San Juan County relative to Grand County, mostly because of the state and local components. Despite the larger number of government jobs in San Juan County, its local unemployment rate was 9.2 percent, compared to 6.5 percent in Grand County. Both counties had significantly higher unemployment rates during the first half of 2000 compared to the state average of 3.7 percent. These indicators of human resource availability vary because of the seasonal nature of employment opportunities and job turnover rates in the tourism-recreation job base. For example, seasonal unemployment in Grand County has ranged from 6.2 percent to 7.3 percent (GPU 2003).

Meanwhile, over the longer term (since 1995), tourism-recreation employment has grown by some 20 percent, now accounting for at least 45 percent of Grand County's total employment (GPU 2003). An estimated 1,878 jobs are now tourism-related (GPU 2003). By comparison, mining has decreased from a 16-percent share of total area employment in 1995 to a 2-percent share in 2000, and government employment has increased from 10 to 19 percent (GPU 2003). Federal land management agencies are among the major employers in the regional economy. At the center of this activity is the city of Moab, which acts as a gateway to Arches and Canyonlands National Parks, as well as Dead Horse Point State Park and the famous Slickrock Bike Trail. In the year 2000, Arches National Park attracted some 790,000 visitors, and Canyonlands National Park received 400,000 visitors.

3.1.18.2 Housing and Income Characteristics

Census data for 2000 show significant increases in both the number of housing units and the number of households in the study region. In Grand County, the number of housing units increased by more than 35 percent compared to 1990 levels, and the number of households increased by 38 percent relative to 1990 levels. Although the growth rates for San Juan County tended to be half as large as those of Grand County, the residents of San Juan County had a larger percentage of owner-occupied dwellings (79.3 percent compared to 71 percent). [Table 3–18](#) provides information on housing and income characteristics in Grand and San Juan counties.

Table 3–18. Housing and Income Information for Grand and San Juan Counties, Utah

Housing and Income	Grand County	San Juan County
2000 housing units	4,062	5,449
1990–2000 percent change	35.8	17.2
Percent owner occupied	71.0	79.3
Number of households	3,434	4,089
1990–2000 percent change	38.0	21.2
1997 median household income (1997 dollars)	\$28,881	\$26,723
1989–1997 percent change	33.1	54.6
1998 per capita income	\$19,505	\$12,685
Percent of national average	71.7	46.6
Percent of Utah average	87.7 (71.7/81.8)	56.9 (46.6/81.8)

Source: U.S. Census Bureau, County and City Data Book: 2000. Percentage of Utah average is calculated by dividing the county per capita income as a percentage of national average (71.7 percent and 46.6 percent, respectively) by the state per capita income as percentage of national average (81.8 percent).

Temporary housing and accommodations in Moab are available for the large influx of tourist and recreational visitors in various forms, including motels and hotels (1,583 rooms); bed and breakfasts, apartment units, condominiums, and guest houses (278 rooms); and numerous campsites (GPU 2003). Additional temporary housing and accommodations are available in the towns of Monticello and Green River. For example, Monticello (55 miles south of Moab) has more than 200 motel and hotel rooms, 2 bed and breakfasts, and 5 campsite-RV parks. Temporary housing accommodations in Green River include 650 hotel and motel rooms, 1 bed and breakfast, and 3 camp parks.

The vacancy rates for temporary housing in Moab tend to follow the pattern of the seasonal tourist economy. The availability of apartment rental units, as well as mobile homes and trailers, is greatest between November and mid-February. By early spring, most rental units are occupied by seasonal employees staffing motels, restaurants, shops, and other tourist service businesses (e.g., bike shops, raft tour companies). Outside of Moab, temporary housing is also limited to a few motels, trailers, and campgrounds in towns such as Green River (52 miles northwest of Moab), Monticello (54 miles south of Moab), and Blanding (78 miles south of Moab).

Table 3–18 also reports median household incomes (1997) and per capita incomes (1998) for the two counties. These statistics suggest that the typical resident of Grand County had a slightly larger median household income and a relatively larger per capita income than the typical resident in San Juan County. The similarity of values for median household incomes is attributable to relatively faster income growth in San Juan County during 1989 to 1997 (54.6 percent compared to Grand County’s 33.1 percent). Per capita income in San Juan County is less than that of Grand County (\$12,685 compared to \$19,505) and makes up only 56.9 percent of the average per capita income in Utah and only 46.6 percent of the average per capita income in the United States. By comparison, Grand County’s per capita income is closer to the state and national averages (87.7 percent and 71.7 percent, respectively).

3.1.18.3 Commercial Business and Farm-Based Enterprise

In 1998, there were an estimated 360 private nonfarm businesses in Grand County, many supporting the expanding tourism-recreation sector. The number of private businesses in Grand County grew by 67.4 percent between 1990 and 1998, reflecting a period of relative prosperity in the local and regional economy. In 2000, tourists spent an estimated \$99.2 million in Grand County, making it the seventh highest county for tourist dollars spent in Utah (GPU 2003). By comparison, San Juan County had an estimated 242 private nonfarm businesses in 1998, an increase of 22.2 percent over 1990. Table 3–19 provides information on the number and growth of private commercial businesses and farm-based enterprise in the two-county region.

Table 3–19. Commercial and Farm-Based Enterprise in Grand and San Juan Counties

Enterprise	Grand County	San Juan County
Private nonfarm businesses, 1998	360	242
1990–1998 percent change	67.4	22.2
1998 annual payroll per worker	\$15,188	\$16,464
Percent of national average	49.6	53.8
Percent of Utah average	59.3 (49.6/83.7)	64.3 (53.8/83.7)
1997 accommodation and food service firms	82	38
Paid employees	1,141	382
1997 number of farms	85	231
Land in farms (acres × 1,000)	76	1,673
1997 value of farm products, average per farm	\$26,929	\$39,381

Source: U.S. Census Bureau, County and City Data Book: 2000. Percentage of Utah average is calculated by dividing the county annual payroll per employee as a percentage of national average (49.6 percent, 53.8 percent) by the state annual payroll per employee as percentage of national average (83.7 percent).

Signs of a new growth economy are apparent in the service sector, particularly in the number of accommodation and food service firms located in Grand County. In 1997, this sector had

82 firms (mostly located in Moab), supporting 1,141 paid employees. Taxable retail sales, services, and business equipment purchases for Grand County amounted to \$159.6 million in 2000 (GPU 2003). Grand County and the city of Moab have experienced significant accommodations growth; lodging capacity increased from 612 rooms to 1,861 rooms (GPU 2003). As a result, the local tax base is heavily dependent on the level of tourism-recreation activity.

By contrast, San Juan County has a much smaller service sector supporting the tourism-recreation-based economy; in 1997, 38 firms provided accommodation and food services and employed 382 workers.

The annual payroll per worker for both Grand County and San Juan County (\$15,188 and \$16,464, respectively) remained well below state and national averages despite growth and development in the tourism-recreation economy. In Grand County, for example, the annual payroll per worker is only 59.3 percent of the state average and 49.6 percent of the national average. The percentages for San Juan County are somewhat higher than those for Grand County (64.3 percent and 53.8 percent), possibly because its service sector and underlying labor force are less dependent on tourism- and recreation-based activities.

Table 3–19 also provides information on farm-based enterprise in the two-county region. San Juan County had 231 farms in 1997 occupying over 1.6 million acres of land. On average, each farm contributed \$39,381 worth of farm products to the local economy, signifying the relative importance of farm-based activity in San Juan’s local economy. Farm-based activity in Grand County plays a relatively minor role in its local economy. In 1997, Grand County had 85 farms covering 76,000 acres of land and producing an average value of \$26,929 worth of farm products per farm.

The availability of land in Grand County for expanding economic activity is restricted, given the predominant role of state and federal governments in managing nearly 94 percent of Grand County’s total land area. For example, only 4.3 percent of the land in Grand County is privately owned; most of the remaining land is managed by the federal government (71.7 percent), owned by the state (15.5 percent), or held in trust as American Indian tribal land (4.4 percent). Other land stakeholders in Grand County include the USFS (1.2 percent) and the U.S. Department of Defense (0.08 percent) (GPU 2003).

3.1.19 Human Health

Human health at and near the Moab site is influenced by the radiation sources in the environment and the contaminants associated with the mill tailings at the site. Exposures occur to occupational workers and members of the public that may live near or recreate adjacent to the site. This section evaluates the potential risks to human health at the Moab site. Appendix D presents a detailed evaluation of the risk to the public.